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International
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Instruction
Manual for

mcc



*Miniature Electronic
Calculator by*

**Summit
International
Corporation**



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INTRODUCTION

Congratulations! You now have one of the most advanced hand held instruments in the world that will instantly convert U.S. measurements to metric terms, or vice versa. Use it to convert terms of liquid measurement; use it for converting measurements of length, area, volume, mass, and temperature. You have full use of 36 different programs.

In addition, your Metric Conversion Computer (MCC) is a 5-function calculator with memory that will solve your mathematical problems for you.

To get the full use of your miniature computer, please read through this manual to see how to take care of it, how to operate it and what you can expect it to do for you.

In the unlikely event that it should fail to operate properly, take the following steps:
Install fresh batteries (Make sure

permanent type batteries are fully charged), or plug in adaptor.

Check your procedures with the operating section of this manual.

Should you still have difficulty, read the warranty section for factory repair. We'll be glad to make it work for you.

By treating the MCC with the respect due any fine instrument, you can expect years of accurate, dependable service. We hope you find it useful as a constant companion.

FEATURES

1. The components used in your calculator have been especially designed to give unsurpassed reliability.
2. The high performance components provide for calculations of all types. The basic four functions of Arithmetic, Successive Division and Multiplication,

Mixed Calculations, Squaring, Percent, and 36 conversions between U.S. and Metric Measurements (Conversions, page 16) are possible with this calculator.

3. Your MCC will make calculations of up to 16 digits, and display the eight most significant digits.
4. The calculator is provided with throw-away (non-chargeable) batteries which provide for cordless operation up to four hours.
5. An adaptor is provided with the calculator. (For use see AC Operation, page 7)
6. Optional — Permanent Batteries
Option is available at time of purchase or may be installed later at a nominal fee. To have permanent batteries installed after purchase, send calculator in to the nearest Summit Service Center (follow

directions under Warranty, page 29) and explain that you want the permanent batteries installed.

BATTERY/AC OPERATION

BATTERY OPERATION

A. Removeable Batteries

1. Type of batteries:

- a. Non-chargeable throw-away. (Size N or $\frac{1}{2}$ AA)
- b. Rechargeable. Not recommended since they must be charged outside the calculator.

2. Changing Batteries:

Remove battery compartment door by placing finger in recess on back of calculator case and pulling down and out. The batteries are placed in the calculator as shown in Fig. 1, and the cover is snapped back in place.

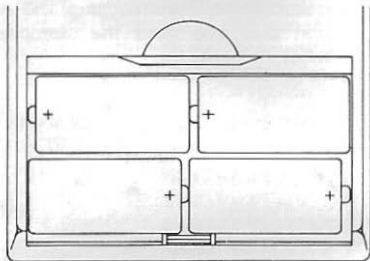


FIG. 1

3. Operation:

Push slide switch to "ON" and begin operation. Batteries will supply about four hours operation time.

B. Permanent Batteries (Optional)

1. Type of batteries: Rechargeable.
2. Charging: Adaptor is used as charger.

Insert DC plug into single pin socket at the top end of the calculator. Insert AC plug into socket. Charging now occurs irrespective of whether the power switch is on or off. The calculator may be used while charging. Two to four hours are required for a full charge. The unit should not be charged for more than four hours. Any excessive recharging will reduce overall life of the battery.

3. Operation:

Remove the adaptor cord and push the slide switch to "ON" position. A full battery charge can be expected to supply about four hours of operation time.

AC OPERATION

AC operation is possible in the two following conditions:

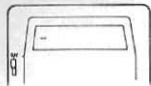
Removeable batteries installed. May be used in this condition indefinitely.

Permanent batteries installed (Optional). Use in this manner only when recharging batteries.

Plug the adaptor into the calculator and insert the AC plug into the electrical outlet. After the above connection, the power switch may be turned on and operation started.

DISPLAY INDICATIONS

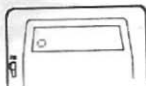
Negative



Indicates either the entry or the result is negative.

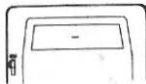
Overflow

Indicates a calculation of more than eight



digits. No more operations can be performed. The correct answer to the calculation can be found by adding a sufficient amount of zeros and moving the decimal eight places to the right. Indication can be cleared by \boxed{C} or turning the calculator OFF, then ON.

Display Blanking (For Power Saving)



Nothing has been changed in the calculator. Pushing the equal key, $\boxed{=}$, executes the previous command and displays the result. Pushing any other function key, ($\%$, $+$, $-$, \times , \div) returns display and executes the

normal key function.
(See Keyboard, page 10)

KEYBOARD FUNCTIONS

<> Indicates marking below key. (See Fig. 2, page 15)

Numeric Keys

0 — 9

<Conversion
Function for
each Key>

When depressed, these keys normally enter digits of a number. The figures will be displayed and stored by the calculator. (Also see Conversion Function Keys, page 16)

Clear Key

C

<C/CE>

When depressed during a number entry, causes clearing of that entry only. When depressed after any function key (+, -, x, ÷, %, =) causes clearing of all the calcu-

lator logic except the memory. When depressed during a conversion cycle, causes a clearing of the conversion commands but does not affect data in the calculator.

NOTE:

Depressing Clear Key twice during number entry or conversion sequence will clear all calculator logic except the memory.

Decimal Point Key

.

Enters decimal point location when depressed during entry sequence.

Plus Key

+

Executes any previous command and stores an add command.

Minus Key



<U³>

Normally executes any previous command and stores a subtract command. If depressed as the first key of an entry, the number entered will be negative. (Also see U³ Key, page 14)

Multiplication Key



Division Key



Executes any previous command and enters a multiply command.

Executes any previous command and enters a divide command.

Percent Key



Executes any previous command and displays the result. If the previous command was a multiply, the result will be automatically

Memory Equals Key



Equals Key



<U²>

Conversion Key



divided by 100. If the previous command was a divide, the result will be automatically multiplied by 100.

Normally recalls memory when depressed. (See Memory, page 26)

Normally executes any previous command and displays the result. (Also see U² Key, page 14)

Conditions calculator to convert from U.S. to Metric Measurements. (See Conversion Sequence, page 18)

Reverse
Conversion Key




Conditions calculator
to convert from Metric
to U.S. Measurements.
(See Conversion Se-
quence, page 18)

NOTE: The following keys will be inter-
preted as conversion keys only
during conversion cycle. (See
Conversion Sequence, page 18)

Area Conversion
Key

<U2>

Physically the same as
the  key but con-
ditions the calculator to
perform area conver-
sions.

Volume
Conversion Key

<U3>


Physically the same as
the  key but con-
ditions the calculator to
perform volume conver-
sions.

FIG. 2



C/CE



MI KM



GL L



LB KG



YD M



QT L



OZ G



U³



FT M



OZ CC



°F °C



IN CM



U²

Conversion Function Keys

(example)

<IN CM>

Physically the same as the numeric keys. These keys define the units of the conversion, execute the conversion and display the results. The conversion function for each key is just below the key as shown in Fig. 2.

CONVERSIONS

Your metric conversion computer is capable of the following 36 conversions, 18 from metric to U.S. and 18 from U.S. to metric; as well as a five function calculator with memory:

Length:

Inches ⇔ Centimeters

Feet ⇔ Meters

Yards ⇔ Meters

Miles ⇔ Kilometers

Key:

<IN CM>

<FT M>

<YD M>

<MI KM>

Area:

Inches² ⇔ Centimeters²

Feet² ⇔ Meters²

Yards² ⇔ Meters²

Miles² ⇔ Kilometers²

<U2> and
Length Key

"

"

"

Volume:

Inches³ ⇔ Centimeters³

Feet³ ⇔ Meters³

Yards³ ⇔ Meters³

Miles³ ⇔ Kilometers³

<U3> and
Length Key

"

"

"

Liquid:

Ounces ⇔ Cubic-
Centimeters

Quarts ⇔ Liters

Gallons ⇔ Liters

<OZ CC>

<QT L>

<GL L>

Mass:

Pounds ⇔ Kilograms

Ounces ⇔ Grams

<LB KG>

<OZ G>

Temperature:





Degrees Fahrenheit ⇄

Degrees Centigrade


⟨°F °C⟩


CONVERSION SEQUENCE:







The convert operation may be initiated at any point in a problem. After the number you want converted is in the display, simply:

- 1.) Push the  key.
- *2.) Push the ⟨U²⟩ () or ⟨U³⟩ () key
(If area or volume conversion is desired).
- *3.) Push the  key (If metric to U.S. conversions is desired).
- 4.) Push the number key corresponding to the desired conversion units.

*Steps 2.) and/or 3.) may not apply to the

conversion you are doing. If not, simply leave them out and proceed to the next step. Also, the order of steps 2.) and 3.) may be reversed if desired. If the wrong key is pushed in step 2.) or 3.) push the  key and start again with step 1.)

NOTE: The conversion units are put just below the key in exactly the direction in which they will be performed. If you want them to go in the opposite direction, simply push the  key.

For example: The key  converts from ⟨IN CM⟩. To convert from inches to centimeters simple enter the number of inches, push the  and push . To convert from centimeters to inches, simply use the same sequence as mentioned above except push the  between the  and the .

After completion of the conversion, the result is displayed and may be used as an entry.

CONVERSION EXAMPLES:

Problem:

How many meters in 100 yards?

Entry: $\boxed{1} \boxed{0} \boxed{0} \left[\rightarrow \leftarrow \right] \langle \text{YD M} \rangle (\boxed{4})$

Display: 91.44

How many yards in 100 meters?

Entry: $\boxed{1} \boxed{0} \boxed{0} \left[\rightarrow \leftarrow \right] \left[\leftarrow \right] \langle \text{YD M} \rangle (\boxed{4})$

Display: 109.36132

How many square miles in 10 square kilometers?

Entry: $\boxed{1} \boxed{0} \left[\rightarrow \leftarrow \right] \langle \text{U}^2 \rangle (\boxed{=}) \left[\leftarrow \right]$
MI KM ($\boxed{7}$)

Display: 3.8610215

How many cubic centimeters in 5.6 cubic inches?

Entry: $\boxed{5} \boxed{.} \boxed{6} \left[\rightarrow \leftarrow \right] \langle \text{U}^3 \rangle (\boxed{=})$
 $\langle \text{IN CM} \rangle (\boxed{0})$

Display: 91.767558

How much does a 170 pound man weigh in kilograms?

Entry: $\boxed{1} \boxed{7} \boxed{0} \left[\rightarrow \leftarrow \right] \langle \text{LB KG} \rangle (\boxed{9})$

Display: 77.112

How many quarts are in eight liters?

Entry: $\boxed{8} \left[\rightarrow \leftarrow \right] \left[\leftarrow \right] \langle \text{QT L} \rangle (\boxed{5})$

Display: 8.4535319

If the temperature were 39° Centigrade, what is the temperature in Fahrenheit?

Entry: $\boxed{3} \boxed{9} \left[\rightarrow \leftarrow \right] \left[\leftarrow \right] \langle ^\circ \text{F } ^\circ \text{C} \rangle (\boxed{3})$

Display: 102.2

Adding the distances 30 miles, 320 miles, 161 kilometers and 50 miles can be accomplished as follows:

ENTRY	DISPLAY
$\boxed{3} \boxed{0} \boxed{+}$	30.
$\boxed{3} \boxed{2} \boxed{0} \boxed{=}$	350.
$\left[\rightarrow \leftarrow \right] \langle \text{MI KM} \rangle (\boxed{7})$	563.2704
$\boxed{+}$	563.2704

1 6 1 =

  <MI KM> (7)

+

5 0 =

724.2704

450.04076

450.04076

500.04076

Approximately 500 miles or

 <MI KM> (7)

804.73759

Approximately 805 kilometers

This same problem can be solved using the memory. (See Memory, page 26)

ALGEBRAIC LOGIC

Algebraic logic allows you the simplicity of entering a problem exactly the way you would write it down on paper, even when dealing with negative numbers. The true credit balance feature of your machine always displays the correct answer, even the sign.

The automatic floating decimal system designed into your machine keeps track of and automatically positions, the decimal point in all calculations, and displays all significant digits of the calculation. Insignificant

zeros are not displayed and may be added by the user to suit his needs; i.e.: If you add \$.45 + \$.65 the answer displayed is 1.1. The user should think of this as \$1.10. Rounding off is done by the same principle. If you divide \$1.00 by 3 the display shows 0.3333333 which should be interpreted as \$.33.

ADDITION

Problem	Entry	Display
3 <u>+4</u> 7	3 + 4 =	7.
5.23 1.94 <u>.11</u> 7.28	5.23 + 1.94 =	7.28
7 <u>+(-3)</u> 4	7 + - 3 =	4.

SUBTRACTION

Problem	Entry	Display
9 -6 3	9 - 6 =	3.
31096 -554 -96 30446.	3 1 0 9 6 - 5 5 4 - 9 6 =	30446.
-8 -(-3) -5	- 8 - - 3 =	-5

MULTIPLICATION

Problem	Entry	Display
4 x3 12	4 x 3 =	12.
56 x(-8) -448	5 6 x - 8 =	-448.

DIVISION

Problem	Entry	Display
8 ÷2 4	8 ÷ 2 =	4.
796 ÷(-3) -265.33333	7 9 6 ÷ - 3 =	-265.33333

CHAIN CALCULATIONS

Problem	Entry	Display
5 +4 x3 -7 ÷5 4	5 + 4 x 3 - 7 ÷ 5 =	4.

PERCENT

Problem: What is 15% of 783?

Entry: 7 8 3 x 1 5 %

Display: 117.45

Problem: What is 21.4% of 52?

Entry: 5 2 x 2 1 . 4 %

Display: 11.128

RATIO

Problem: 56 is what % of 128?

Entry: $\boxed{5} \boxed{6} \boxed{\div} \boxed{1} \boxed{2} \boxed{8} \boxed{\%}$

Display: 43.75

Problem: 2.14 is what % of 9?

Entry: $\boxed{2} \boxed{.} \boxed{1} \boxed{4} \boxed{\div} \boxed{9} \boxed{\%}$

Display: 23.77777, or rounded off, 24%

Problem: You are the secretary of an organization of 154 members and 118 attend a specific function. What percentage attended?

Entry: $\boxed{1} \boxed{1} \boxed{8} \boxed{\div} \boxed{1} \boxed{5} \boxed{4} \boxed{\%}$

Display: 76.623376, or rounded off 77%

MEMORY

A single key controls both the storage into and retrieval from memory. The system is very simple. If an $\boxed{=}$ key was pushed immediately prior to the $\boxed{M=}$ key, the number in the display is stored into memory. Any other time the $\boxed{M=}$ key is pushed, the contents of the memory are brought into the display and can be used as an entry.

EXAMPLES

Enter	Display
$\boxed{2} \boxed{=} \boxed{M=}$	2.

Stores 2 in Memory

\boxed{C}	0.
-------------	----

$\boxed{M=}$ (Recalls Memory)	2.
-------------------------------	----

To use the memory as an entry

Enter	Display
$\boxed{C} \boxed{6} \boxed{\div} \boxed{M=}$	3.

$\boxed{C} \boxed{.4} \boxed{\times} \boxed{M=}$	8.
--	----

$\boxed{C} \boxed{2} \boxed{+} \boxed{M=}$	4.
--	----

To add 30 miles, 320 miles, 161 kilometers and 50 miles using the memory follow these steps:

Entry	Display
$\boxed{3} \boxed{0} \boxed{+}$	30.

$\boxed{3} \boxed{2} \boxed{0} \boxed{=} \boxed{M=}$	350.
--	------

Stores 350 in Memory

$\boxed{C} \boxed{1} \boxed{6} \boxed{1} \boxed{\leftarrow} \boxed{\leftarrow}$	100.04076
---	-----------

$\boxed{+}$	100.04076
-------------	-----------

$\boxed{M=}$ (Recalls Memory)	350.
-------------------------------	------

$\boxed{+}$	450.04076
-------------	-----------

$\boxed{5} \boxed{0} \boxed{=}$	500.04076
---------------------------------	-----------

Approximately 500 Miles or

$\boxed{\rightarrow} \boxed{MI} \boxed{KM} \boxed{(} \boxed{7} \boxed{)} \boxed{}$	804.73759
--	-----------

Approximately 805 Kilometers

NOTE:

Pushing the $\boxed{M=}$ immediately after an $\boxed{=}$ replaces the memory with the value in the display. Therefore, it is recommended you use the sequence $\boxed{C} \boxed{M=}$ to recall memory anytime there is any question. Memory can be set to zero by turning calculator OFF, then ON or by the key sequence $\boxed{0} \boxed{=} \boxed{M=}$.

ACCUMULATING TO MEMORY

Using a simple key sequence, the memory register may be used to accumulate the results of intermediate problems.

EXAMPLE: $\boxed{2} \boxed{+} \boxed{3} \boxed{=} \boxed{M=}$
Stores 5 into memory $\boxed{3} \boxed{\times} \boxed{4} \boxed{+} \boxed{M=} \boxed{=} \boxed{M=}$

Adds 5 that was in memory to 12 and stores the result back into memory. Note that the first time $\boxed{M=}$ is pushed, it recalls the memory and uses it as an entry and the second time $\boxed{M=}$ is pushed it stores another number back into memory.

WARRANTY

Summit warrants your calculator against faulty workmanship or the use of defective materials for six months from date of purchase. Replaceable batteries not included. This warranty is void if this product has been subject to misuse or abuse, improper voltage, or has been tampered with or repaired by unauthorized personnel. Any attempt to open the calculator, except to replace replaceable batteries, voids the warranty. If during the period of warranty your calculator proves defective in workmanship and/or material, return both the calculator and charger/adaptor postage prepaid to your nearest Summit Service Center or to SUMMIT INTERNATIONAL CORPORATION, P.O. Box 15736, Salt Lake City, Utah 84115. Your calculator will be repaired or replaced, whichever is necessary in the judgement of SUMMIT INTERNATIONAL CORPORATION, and

returned to you at your expense. Identify the problems you are having, be as specific as possible. In the event a calculator is returned without identification of the problems experienced and after examination no defects can be found, you will be subject to a \$5.00 minimum charge. This warranty is void unless the warranty registration card has been properly completed and mailed to SUMMIT INTERNATIONAL within ten (10) days of purchase. This warranty is in lieu of all other guarantees and warranties expressed or implied.

AVAILABLE ACCESSORIES

Charger/Adapter	\$5.95
Carrying Pouch	\$2.00
Instruction Manual	\$.50

Send order with check or money order to:

**SUMMIT INTERNATIONAL
CORPORATION**

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